

Attorney Docket No.: **PENN-0754**
Inventors: **Scott L. Diamond**
Serial No.: **09/763,982**
Filing Date: **April 25, 2001**
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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (previously presented): A composition for delivery of a molecule to the nucleus of a eukaryotic cell comprising a nuclear targeting peptide containing a nonclassical, nuclear localization signal which does not interact with importin- α and importin- β , with the proviso that the nuclear targeting peptide does not contain a classical nuclear localization signal.

Claim 2 (original): The composition of claim 1 wherein the nuclear targeting peptide interacts with transportin to mediate nuclear pore targeting and import of molecules into the nucleus of the cells.

Claim 3 (original): The composition of claim 2 wherein the nuclear targeting peptide interacts with transportin to mediate nuclear pore targeting and import of molecules into the nucleus of the cells.

Claim 4 (currently amended): A method of delivering selected molecules to nuclei of eukaryotic cells comprising contacting the eukaryotic cells with the selected molecules contacted with and a

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nuclear targeting peptide containing a nonclassical, nuclear localization signal with the proviso that the nuclear targeting peptide does not contain a classical nuclear localization signal.

Claim 5 (original): The method of claim 4 wherein the nuclear targeting peptide interacts with transportin to mediate nuclear pore targeting and import of the selected molecules into the nucleus of the cells.

Claim 6 (original): The method of claim 5 wherein the nuclear targeting peptide comprises SEQ ID NO:3.

Claim 7 (previously presented): A compound comprising:

(a) a cationic peptide scaffold; and
(b) a nuclear targeting peptide containing a non-classical nuclear localization sequence which does not interact with importin- α and importin- β , said cationic peptide scaffold being conjugated to said nuclear targeting peptide via a chemical linkage with the proviso that the nuclear targeting peptide does not contain a classical nuclear localization signal.

Claim 8 (previously presented): A compound comprising:

(a) a cationic peptide scaffold; and
(b) a nuclear targeting peptide containing a non-classical nuclear localization sequence which does not interact with

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importin- α and importin- β , said cationic peptide scaffold being conjugated to said nuclear targeting peptide via a chemical linkage, wherein the nuclear targeting peptide comprises SEQ ID NO:1.

Claim 9 (previously presented): A composition comprising a peptide scaffold, a nuclear targeting peptide containing a nonclassical nuclear localization sequence and a plasmid containing a selected nucleic acid sequence with the proviso that the nuclear targeting peptide does not contain a classical nuclear localization signal.

Claim 10 (original): The composition of claim 9 wherein the peptide scaffold is conjugated to the nuclear targeting peptide and a complex is formed between the plasmid and the conjugate.

Claim 11 (currently amended): A method for expressing a selected nucleic acid sequence in eukaryotic cells comprising contacting cells with a mixture of a selected nucleic acid sequence contacted with, a peptide scaffold and a nuclear targeting peptide containing a nonclassical nuclear localization signal with the proviso that the nuclear targeting peptide does not contain a classical nuclear localization signal.

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Claim 12 (previously presented): A method for expressing a selected nucleic acid sequence in eukaryotic cells comprising forming a complex between a plasmid containing the selected nucleic acid sequence and a scaffold-nuclear targeting peptide conjugate; and contacting cells with the complex with the proviso that the scaffold-nuclear targeting peptide conjugate does not contain a classical nuclear localization signal.

Claims 13-14 (canceled).